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INTERNATIONAL PRELIMINARY EXAMINATION REPORT
(PCT Article 36 and Rule 70)

Applicant's or agent's file reference P 01 104 WO	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/DK 02/00007	International filing date (day/month/year) 03.01.2002	Priority date (day/month/year) 03.01.2002
International Patent Classification (IPC) or both national classification and IPC H04L12/28		
Applicant VKR HOLDING AS		



- This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
- This REPORT consists of a total of 7 sheets, including this cover sheet.

☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

 These annexes consist of a total of 4 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the opinion
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 01.07.2003	Date of completion of this report 22.03.2004
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized Officer Jurca, A Telephone No. +49 89 2399-6979 

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. **PCT/DK 02/00007**

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

Description, Pages

1-19 as published

Claims, Numbers

1-19 received on 09.03.2004 with letter of 05.03.2004

Drawings, Sheets

1/6-6/6 as published

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:
- ☐ the drawings, sheets:

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5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

see separate sheet

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	3,4,10,15-18
	No: Claims	1,2,5-9,11-14,19
Inventive step (IS)	Yes: Claims	
	No: Claims	1-19
Industrial applicability (IA)	Yes: Claims	1-19
	No: Claims	

2. Citations and explanations

see separate sheet

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/DK02/00007

Re Item V

Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. The following documents cited in the International Search Report have been considered in this report:

D1: WO 02 17560 A (SAGE SYSTEMS INC.) 28 February 2002 (2002-02-28)

D2: TSANG P W M ET AL.: 'DEVELOPMENT OF A DISTRIBUTIVE LIGHTING CONTROL SYSTEM USING LOCAL OPERATING NETWORK' IEEE TRANSACTIONS ON CONSUMER ELECTRONICS, IEEE INC. NEW YORK, US, vol. 40, no. 4, 1 November 1994 (1994-11-01), pages 879-889, XP000495826 ISSN: 0098-3063

2. The following documents were not cited in the international search report. Copies of the documents are appended hereto. The numbering will be adhered to in the rest of the procedure:

D3: US 6 026 150 (EPIGRAM) 15 February 2000 (2000-02-15)

D4: XP 000071578, "Networking the intelligent home", Hanover G., pages 48-49, IEEE Spectrum 26 October 1999

3. Document D3, which is considered to represent the closest prior art, discloses, according to all the features of claim 1:

method of transmitting signals ("control signals", col. 3, line 66 - col. 4, line 1), e. g. control signals, request signals, interrogation signals etc. to a node in the form of a controllable unit associated with a device ("consumer electronic device", col. 3, line 61 - col. 4, line 5), e. g. a controllable device, measuring means, etc. and wherein said controllable unit may be linked to at least one further node ("second consumer electronic device", abstract) by means of a communication bus (fig. 1, ref. "telephone line"), at least one of said nodes comprising radio frequency receiving means ("wireless signal

receiver", abstract; col. 3, line 66 - col. 4, line 5), said method comprising the steps of

- a) transmitting a signal from a controller using radio frequency transmission means (col. 3, line 61 - col. 4, line 5),
- b) reception of said signal by at least said node comprising radio frequency receiving means (col. 3, line 61 - col. 4, line 5),
- c) detection of at least part of said signal indicating a destination node (col. 10, lines 6-15; fig. 5, ref. "preamble"; col. 3, lines 1-10), and
- d) retransmittal of said signal or part of said signal by said node comprising radio frequency receiving means to said destination node via said communication bus (abstract; col. 4, lines 19-23).

As a consequence, the subject-matter of claim 1 is not new and claim 1 does not meet the criteria of Article 33 (1) and (2) PCT.

- 4. The subject-matter of the independent claim 9 corresponds in terms of system features to that of present claim 1. As a consequence, independent claim 9 is also not new and does not meet the criteria of Article 33 (1) and (2) PCT.
- 5. Furthermore it is pointed out that even if the above novelty objections could be argued based on minor differences of interpretation between some of the features of independent claim 1 or 9 and those disclosed in D3, the subject-matter of claims 1 or 9 would still not be regarded as involving an inventive step (Articles 33(1) and (3) of the PCT) over the disclosure of D3, considering that D3 aims to solve the same problem (i.e. integrating multiple control systems and corresponding controlled units using both wireless and wired connection) and discloses the same type of solution as the present application.
- 6. The arguments submitted by the Applicant asserting that "D3 does not specify that the signal from the remote control comprises an indication of a destination node" and that "the remote control uses infrared" (as opposed to radio frequency) are not considered as applicable, because all devices from D3, including the remote, communicate based on a special

protocol (col. 3, lines 3-5) using packets containing source and destination addresses (col. 10, lines 6-15). Moreover, in D3 the communication with the remote is in fact wireless, and only in particular infrared (col. 3, line 61 - col. 4, line 5), which is novelty destroying for claims 1 and 9.

7. The dependent claims 2-8 and 10-19 do not present additional features with inventive significance over the independent claims on which they are appended, as their features are either already known or easily derivable from the prior art, or are common measures, as detailed in the following sub-paragraphs:

- claim 2: D3, col. 9, lines 21-61
- claim 3: random timeslot selection is a common measure - see CSMA, CSMA/CD and TDMA solutions proposed in D3, col. 9, lines 33-61
- claims 4,16,17: common measures
- claims 5,11: D3, col. 10, lines 6-15; fig. 5, ref. "preamble"
- claims 6,14: D3, fig. 1, ref. "telephone line"
- claims 7,12,13: D3, abstract; col. 3, lines 1-10
- claims 8,19: D3, col. 11, lines 4-13; col. 3, lines 3-5
- claims 10,15, 18: D2, p. 881-882, subnets detailed; D4, fig. 1, routers
- claim 18: D3, col. 11, line 24 - col. 12, line 17

Thus, dependent claims 2, 5-8, 11-14 and 19 do not meet the criteria of Article 33 (1) and (2) PCT and dependent claims 2-8 and 10-19 do not meet the criteria of Article 33 (1) and (3) PCT.

Moreover, even the aforementioned novelty objections could be argued based on minor differences of interpretation between some of the features of dependent claims 2, 5-8, 11-14 and 19 and those disclosed in D3, the subject-matter of these claims would still not be regarded as involving an inventive step (Articles 33(1) and (3) of the PCT) over the disclosure of D3, considering that D3 aims to solve the same problem (i.e. integrating multiple control systems and corresponding controlled units using both wireless and wired connection) and discloses the same type of solution as

the present application.

Miscellaneous

1. Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in the documents D1-D4 is not mentioned in the description, nor are these documents identified therein.
2. The features of the claims are not provided with reference signs placed in parentheses (Rule 6.2(b) PCT).
3. The expressions "e.g.", "for example" and "preferably" used in claims 1, 5, 8, 9, 11, 12 and 15-19 have no limiting effect (Guidelines PCT 5.40). Thus for example the amendment introduced in claim 8 is not relevant for the examination.
4. Independent claims 1 and 9 are not in the two-part form in accordance with Rule 6.3(b) PCT, which in the present case would be appropriate, with those features known in combination from the closest prior art (D3) being placed in the preamble (Rule 6.3(b)(i) PCT) and with the remaining features being included in the characterising part (Rule 6.3(b)(ii) PCT).

Moreover, dependent claims 2-8 and 10-19 are incorrectly drafted using the two-part form (Rule 6.3(b) PCT). In this respect, the Applicant is requested to amend these claims by using for e.g. in claim 2 a formulation like "further comprising..." instead of "c h a r a c t e r i z e d in that the method comprises...".

Amended Patent Claims

1. Method of transmitting signals, e.g. control signals, request signals, interrogation signals etc. to a node in the form of a controllable unit associated with a device, e.g. a controllable device, measuring means, etc. and wherein said controllable unit may be linked to at least one further node by means of a communication bus, at least one of said nodes comprising radio frequency receiving means, said method comprising the steps of
- a) transmitting a signal from a controller using radio frequency transmission means,
 - b) reception of said signal by at least said node comprising radio frequency receiving means,
 - c) detection of at least part of said signal indicating a destination node, and
 - d) retransmittal of said signal or part of said signal by said node comprising radio frequency receiving means to said destination node via said communication bus.
2. Method according to claim 1, characterized in that the method comprises a procedure for determining a timeslot in which said retransmittal is performed by said node comprising radio frequency receiving means.
3. Method according to claim 2, characterized in that said procedure for determining a timeslot comprises a random selection of a timeslot.
4. Method according to claim 2 or 3, characterized in that said signal may be received by at least two nodes comprising radio frequency receiving means and that said retransmittal is performed only by the node for which the earliest occurring timeslot has been selected.
5. Method according to one or more of claims 1 - 4, characterized in that said at least part of said signal indicating a destination node comprises an identification of the destination node, for example an address.

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6. Method according to one or more of claims 1 - 5, characterized in that said retransmittal of said received signal is performed by means of a wired communication bus.

5 7. Method according to one or more of claims 1 - 6, characterized in that said signal is transmitted to said node comprising radio frequency receiving means by means of a wireless radio frequency remote control.

10 8. Method according to one or more of claims 1 - 7, characterized in that the method further comprises transmittal of a response signal from the destination node; said response signal comprising e.g. an acknowledgement, a request, a measured value etc. and being transmitted via said communication bus and by means of said node having transmitted the signal to the controller having transmitted said signal, e.g. routing the response signal corresponding to the routing
15 of said signal.

9. System for transmission of signals, e.g. control signals, request signals, interrogation signals etc. to a node in the form of a controllable unit associated with a device, e.g. a controllable device, measuring means, etc. wherein said controllable
20 unit may be linked to at least one further node by means of a communication bus, wherein at least one of said nodes comprises radio frequency receiving means for reception of signals transmitted from at least one controller using radio frequency transmission means comprised in the system and wherein said at least one node comprising radio frequency receiving means for reception of radio frequency signals
25 have means for detection of at least part of said signals indicating a destination node and means for retransmitting of a received signal or information comprised herein via said communication bus.

10. System according to claim 9, characterized in that said system
30 comprises a plurality of said nodes in the form of controllable units, each associated with a device, and that said system comprises one or more communication buses, each defining a subnet in the system and each being linked to at least one of said

nodes comprising radio frequency receiving means, and wherein transmission of signals to and/or from said subnets may be performed by radio frequency transmission means.

- 5 11. System according to claim 9 or 10, characterized in that said nodes comprises identification means, e.g. means for storing an e.g. address, and means for identifying an identification part of a received signal.
- 10 12. System according to claim 9, 10 or 11, characterized in that said at least one node comprising radio frequency receiving means comprises means for initiating a re-transmittal of a received signal or part hereof, e.g. in case of reception of a signal with an identification part different from the identification of node in question..
- 15 13. System according to one or more of claims 9 - 12, characterized in that said at least one controller using radio frequency transmission means comprises remote control means for transmission of said signals to one or more of said nodes comprised in the system.
- 20 14. System according to one or more of claims 9 - 13, characterized in that said communication bus comprises a communication channel operating by means of wired connections.
- 25 15. System according to one or more of claims 9 - 14, characterized in that said at least one of said nodes comprising radio frequency receiving means comprises means for establishing and storing a table comprising identification of destination nodes linked by a communication bus, e.g. comprised in a subnet of the system.
- 30 16. System according to one or more of claims 9 - 15, characterized in that said nodes comprise power supply means, preferably connected to a plurality of said nodes by means of a power supply line.

17. System according to claim 16, characterized in that said communication bus comprises a communication channel operating by means of said power supply line, e.g. by means of a modulation technique, superimposing technique etc.

18. System according to one or more of claims 9 - 17, characterized in that at least one of said nodes on the subnet comprises control means for performing a general control of simultaneously and/or sequentially performed operations by the devices involved in the system and in relation to other nodes in the system, e.g. in order to prioritise operations in consideration of certain resources such as available power etc, said control means comprising means for keeping account of available resource(s), means for accepting or denying requests from nodes on the subnet, to which nodes said devices are related, means for aborting current operations of said nodes and/or means for valuating requests and/or current operations in view of a priority value.

19. System according to one or more of claims 9 - 18, characterized in that said radio frequency receiving means may be designed as transceiver means, e.g. in order to respond to received signals by transmitting a response signal comprising e.g. an acknowledgement, a request, a measured value etc.